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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/667,566	09/22/2000	Takafumi Nakamura	197689US2	9678
22850	7590	07/14/2004	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			DI GRAZIO, JEANNE A	
			ART UNIT	PAPER NUMBER
			2871	

DATE MAILED: 07/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 09/667,566	Applicant(s) NAKAMURA ET AL.	
	Examiner Jeanne A. Di Grazio	Art Unit 2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 April 2004.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) 1-6 and 13-16 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 7-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claims***

Claim 7 has been amended. Claims 7-12 are pending.

### ***Priority***

Priority to Japanese Patent Application Nos. 11-271173 (Sept. 24, 1999) and 2000-281164 (Sept. 18, 2000) is claimed.

### ***Election/Restrictions***

Applicant's election without traverse of Group II claims 7-12 in the reply filed on November 18, 2002 is acknowledged.

### ***Claim Objections***

Claim 7 is objected to as reciting confusing language. Specifically, the recitations of first, second, and third wiring layers as connected to an auxiliary capacity electrode, switching elements and first wiring layer, and upper electrode, respectively, is not clear. Generally, a layer is not considered to be connected in an electrical sense to other elements. Such limitation is interpreted to mean that that the layers are spatially arranged relative to each other and respective substrate sides.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 7-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent 5,691,793 (to Watanabe et al.) in view of United States Patent 6,141,066 (to Matsushima).

As to claims 7 (amended)-11, Watanabe discloses a liquid crystal display apparatus wherein capacitor electrodes are fed by a common capacitor line (Figures 4A and 4B, entire patent). Turning to Figures 4A and 4B, Watanabe has a conductive pattern (reference item 421) that is connected to a pixel electrode (reference item 7). In Watanabe, the conductive pattern 421 reaches the underside of the pixel electrode and is above the gate insulating film (reference item 403) thereby satisfying Applicant's first wiring layer connected to an auxiliary capacity electrode, a second wiring layer connected to said switching elements and said first wiring layer;

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and a third wiring layer connected to an upper electrode connected to said pixel electrode and said switching elements.

Watanabe does not appear to explicitly specify said first wiring layer is formed on a layer closer to the lower side of the array substrate than the second wiring layer and the second wiring layer is formed on a layer closer to the upper side of the array substrate than the first wiring layer.

Matsushima teaches and discloses a liquid crystal display device with active matrix substrate using source / drain electrode as a capacitor conductor (Title, entire patent). Referring to Figure 15, Matsushima features a TFT substrate with additional capacity. The TFT substrate shows layers connected to electrodes and the layers are arranged relative to each other and relative to respective substrate sides.

Such a configuration contributes to a device having a high aperture ratio and which prevents lowering of aperture ratio due to an additional capacity (common wiring). The structure also prevents electrical disconnection (Column 4, Lines 27-34).

Matsushima is evidence that ordinary workers in the field of liquid crystals would have found the reason, suggestion, and motivation to include such a structure for a high aperture ratio and which prevents lowering of aperture ratio due to an additional capacity (common wiring) and further in addition to preventing electrical disconnection (Column 4, Lines 27-34).

Therefore, it would have been obvious to one of ordinary skill in the art of liquid crystals at the time the invention was made to modify Watanabe in view of Matsushima for a high aperture ratio and which prevents lowering of aperture ratio due to an additional capacity

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(common wiring) and further in addition to preventing electrical disconnection (Column 4, Lines 27-34).

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over United States Patent 5,691,793 (to Watanabe et al.) in view of United States Patent 6,141,066 (to Matsushima) and further in view of United States Patent 6,317,173 B1 (to Jung et al. ).

As to claim 12, Watanabe does not appear to explicitly specify that a channel area of the switching element, said auxiliary capacity electrode, and said first wiring layer are formed using polycrystalline silicon.

Jung teaches thin film transistors of polycrystalline silicon (Col. 1, Lines 45-51), a polycrystalline silicon layer formed on an insulating substrate and a gate insulating film of silicon dioxide or SiNx (Col. 6, Lines 36-39), and polycrystalline storage capacitor (Col. 1, Lines 52-53). Jung teaches that these elements are conventional in liquid crystal displays and in are used in a liquid crystal display device for sufficient storage capacitance (Jung, column 2, lines 12-13).

Jung is evidence that one of ordinary skill in the art of liquid crystals would have had the reason, suggestion, and motivation to manufacture transistors, insulating layers, and capacitors of polycrystalline silicon in a conventional display and for sufficient storage capacitance.

Therefore, it would have been obvious to one of ordinary skill in the art of liquid crystals at the time the invention was made to modify Watanabe in Jung for sufficient storage capacitance.

***Response to Arguments***

Applicant's arguments with respect to claims 7-12 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeanne A. Di Grazio whose telephone number is (571)272-2289. The examiner can normally be reached on M-F.

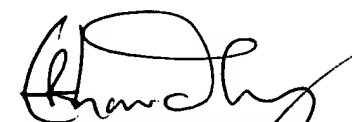
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim, can be reached on (571)272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jeanne Andrea Di Grazio

Robert Kim, SPE

Patent Examiner  
Art Unit 2871



TARIFUR R. CHOWDHURY  
PRIMARY EXAMINER